## II. Remarks

Reconsideration and re-examination of this application, in view of the above amendments and the following remarks, is herein respectfully requested.

After entering this amendment, claims 1-7, 9, 10, 12-31 remain pending. Claims 8 and 11 are canceled. Claims 1, 9, 10, 13, 16, and 30 are amended.

***Claims 18 - 31***

The examiner has failed to indicate the status of pending claims 18-31. Claims 18-31 were included in the application as originally filed and were subsequently amended in a preliminary amendment filed on 06/15/06. The BIB DATA Sheet published to PAIR on 04/15/08 indicates the total claims in the application to be 31. The applicants in this response have amended Claim 30 to remove the accidental inclusion of unnecessary punctuation. The applicants believe that Claims 18-31 are allowable in their current form and such action is respectfully requested.

***Claim Rejections – 35 U.S.C § 102***

Pending Claims 1, 4, 5, 7, and 8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,240,492 to Phillips, et al. ("Phillips"). Applicants respectfully traverse this rejection.

Responsive to this rejection, the cited reference, alone or in combination, fails to teach each and every element of the claimed invention as recited in the claims of the present application as filed. The metallurgical flux described in Phillips does not meet the properties of porosity as claimed by the Applicants in the current invention. Rather in Phillips, the metallurgical flux contains fluxing ingredients in granular or

briquette form, a binder, and an expanding agent (col. 1, lines 53-59). The effect of heat on the expanding agent causes the agent to expand, thereby, breaking the bond or adhesion between binder and granules or briquettes. (col. 1, lines 60-61). The granules or briquettes are not substantially porous but rather dense as indicated by the use of high pressure compaction or spray drying techniques to form the granules and briquettes. (col. 2, lines 5-11). The pellets or granules in the Applicants' invention are shown in grain form to have a porosity of 5 to 70% by volume, in particular from 20 to 60% by volume [0024].

The Applicants have amended Claim 1 to clarify the porosity and composition of the granules or pellets that comprise the covering agent of the present invention. More specifically, the Applicants have indicated the range of porosity for the granules of 5 to 70% by volume and the ratio of CaO to Al2O3 of 0.2 to 1.5 present in the composition of the covering agent. Support for these amendments can be found in original Claims 8-11, as well as in the specification [0024 and 0026]. Accordingly, Claims 8 and 11 have been canceled and Claims 9 and 10 have been amended to coincide with and depend from amended Claim 1.

The Applicants believe that independent Claim 1 as amended is allowable for the reasons cited above. Since dependent Claims 4, 5, 7, 9, and 10 depend directly from amended Claim 1, it is submitted that these claims are allowable for at least the same reason as amended Claim 1. Favorable reconsideration of amended Claim 1, as well as its dependent Claims 4, 5, and 7 is respectfully requested.

Pending Claims 1-4, 6, and 8-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,407,459 to Breault, et al. ("Breault"). Applicants respectfully traverse this rejection.

Responsive to this rejection, the cited reference, alone or in combination, fails to teach each and every element of the claimed invention as recited in the claims of the present application as filed. The sintered calcium aluminates described in Breault does not meet the properties of porosity as claimed by the Applicants in the current invention. In the present invention, porosity in the bodies, granules or pellets may be obtained by the use of a starting material that releases gaseous substances during calcining reactions [0019]. The burning of a binder present with the bodies, granules, or pellets during calcination is another method of producing pores in the pellets or granules [0019 and 0022]. The pellets or granules in the Applicants' invention are shown in grain form to have a porosity of 5 to 70% by volume, in particular from 20 to 60% by volume [0024]. In Breault dross aluminum containing residues and limestone are co-calcined to form calcium aluminates (col. 7, lines 24-28). After calcination, the resulting product is a hard agglomerate, similar in texture to a clinker, which can then be cut and ground into particles (col. 8, lines 27-38). One skilled-in-the-art will recognize that a clinker represents a mass of incombustible matter that is fused together. In contrast, the resulting material after calcination of the granules of the Applicants' invention is a free-flowing top slag material, which is in grain form and has been rendered porous [0033].

As described above, the Applicants have amended Claim 1 to clarify the porosity and composition of the granules or pellets that comprise the covering agent of the present invention. In addition, Claim 8 has been canceled and Claims 9 and 10 have been amended to coincide with and depend from amended Claim 1. Accordingly, the applicants believe that independent Claim 1 as amended is allowable for the reasons cited above. Since dependent Claims 2-4, 6, 9, and 10

depend directly or indirectly from amended Claim 1, it is submitted that these claims are allowable for at least the same reasons as amended Claim 1. Favorable reconsideration of amended Claim 1, as well as its dependent Claims 2-4, 6, 9, and 10 is respectfully requested.

Pending Claims 13 and 15-17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,342,088 to Klatt, et al. ("Klatt"). Applicants respectfully traverse this rejection.

Responsive to this rejection, the cited reference, alone or in combination, fails to teach each and every element of the claimed invention as recited in the claims of the present application as filed. The method of producing the granular thermal insulating material described in Klatt does not provide a material that meets the properties of porosity as claimed by the Applicants in the current invention. In Klatt, the method of producing a granular thermal insulating material includes substantially drying the material (col. 2, line 62). The drying step, which is done "gently" by heating the material to 100-130°C, results in a material having less than about 5% by weight retained water (col. 3, lines 15-21). Since this drying step is done "gently" and does not remove all of the retained water, it is not the same or substantially similar to the heating step disclosed by the Applicants in which the material in granular form is heated such that the binder is burnt out, thereby, generating pores [Claim 13]. The Applicants have amended Claim 13 in order to further clarify the porosity in the material as generated by the process. In particular, Claim 13 has been amended to clarify that the heating step causes porosity in the granular material from 5 to 70% by volume. Support for this amendment can be found in both the original specification [0024] and claims [Claims 11 and 12]. The

Applicants have further amended Claim 13 to clarify the language used to describe the products that are released through dewatering or calcination.

The Applicants have also amended Claim 16 to enhance clarity. More specifically, Claim 16 has been amended to correct for a misspelled word.

Accordingly, the applicants believe that independent Claim 13 as amended is allowable for the reasons cited above. Since dependent Claims 15-17 depend directly from amended Claim 13, it is submitted that these claims are allowable for at least the same reasons as amended Claim 13. Favorable reconsideration of amended Claim 13, as well as its dependent Claims 15-17 is respectfully requested.

Pending Claims 13 and 15-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Breault. Applicants respectfully traverse this rejection.

Responsive to this rejection, the cited reference, alone or in combination, fails to teach each and every element of the claimed invention as recited in the claims of the present application as filed. The process of preparing sintered calcium aluminates described in Breault does not meet the properties of porosity as claimed by the Applicants in the current invention. As previously described with respect to Claim 1 the process in Breault does not result in a material with the porosity of the material that is formed using the process disclosed by the Applicants in the present invention. The aluminum dross residues that are mixed with CaO in step a) of Breault's process are "dry" in that any adhering water has been removed (col. 4, lines 37-39). In the Applicants' process the raw material mixture is such that porosity from 5 to 70% by volume is generated by dehydration or calcination as currently described for Claim 13 as amended.

Accordingly, the applicants believe that independent Claim 13 as amended is allowable for the reasons cited above. Since dependent Claims 15-17 depend directly from amended Claim 13, it is submitted that these claims are allowable for at least the same reasons as amended Claim 13. Favorable reconsideration of amended Claim 13, as well as its dependent Claims 15-17 is respectfully requested.

***Claim Rejections – 35 U.S.C § 103***

Pending Claims 2, 3, 9, and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Phillips as applied to Claim 1. Applicants respectfully traverse this rejection. As previously described above with respect to Claim 1, Phillips does not disclose the invention substantially as claimed by the Applicants. The granules described by Phillips do not possess the properties of porosity as claimed by the Applicants in the current invention. The granules or briquettes in Phillips are not substantially porous but rather dense as indicated by the use of high pressure compaction or spray drying techniques to form the granules and briquettes. (col. 2, lines 5-11), while the pellets or granules in the Applicants' invention are shown in grain form to have a porosity of 5 to 70% by volume, in particular from 20 to 60% by volume [0024]. Accordingly, the applicants believe that independent Claim 1 as amended is allowable for the reasons cited above.

Since dependent Claims 2, 3, 9, and 10 depend directly or indirectly from independent Claim 1, it is submitted that these claims are allowable for at least the same reasons as amended Claim 1. Favorable reconsideration of dependent Claims 2, 3, 9, and 10 is respectfully requested.

Pending Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Breault as applied to Claim 13, and in further view of Japanese

Publication No. 11278916 to Mitamura, et al. ("Mitamura"). Applicants respectfully traverse this rejection. As previously described above with respect to Claim 13, Breault does not disclose the invention substantially as claimed by the Applicants. The sintered calcium aluminates described in Breault does not meet the properties of porosity as claimed by the Applicants in the current invention. In Breault, the resulting product is a hard agglomerate, similar in texture to a clinker, which can then be cut and ground into particles (col. 8, lines 27-38). Since the aluminum dross residue in Breault has a particle size up to ½" or 12,700 micrometers (col. 3, lines 35-37), there is no reason, motivation, or suggestion for anyone using the process or material of Breault to use particles that have a grain size of 74 micrometers as disclosed for the refractory raw material of Mitamura.

As previously indicated, the Applicants have amended Claim 13 in order to further clarify the porosity in the material as generated by their process. Accordingly, the applicants believe that independent Claim 13 as amended is allowable for the reasons cited above. Since dependent Claim 14 depends directly from amended Claim 13, it is submitted that this claim is allowable for at least the same reasons as amended Claim 13. Favorable reconsideration of dependent Claim 14 is respectfully requested.

Pending Claims 1, 11, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Reissued Patent No. RE 31,589 to Phoenix, et. al. ("Phoenix") in view of U.S. Patent No. 4,014,684 to Jones, et. al. ("Jones"). Applicants respectfully traverse this rejection.

Lacking any other support in Phoenix for the definition of AFS units, the examiner has interpreted this term to be directly related to the percent by volume of

porosity. The examiner is mistaken as to the definition of AFS units. The Applicants refer the examiner to U.S. Patent No. 3,758,799 to Dochterman, et al. ("Dochterman") for the meaning of AFS units known to those skilled in the art. AFS units is a term put forth by the American Foundryman's Society (AFS) that relates to the porosity of a surface (i.e., surface texture) and not to volume percent porosity of a material (see Dochterman, col. 6, line 50 to col. 7, line 35). Thus Phoenix does not teach the volume porosity described by the Applicants.

The metallurgical flux described in Jones does not meet the properties of porosity as claimed by the Applicants in the current invention. In fact, the metallurgical flux of Jones does not even function as a covering for liquid metal. Rather in Jones, the metallurgical flux is injected in its particulate form into a molten metal for the purpose of desulphurization (col. 1, lines 57-65). Thus the metallurgical flux in Jones fails to teach the properties of porosity as claimed by the Applicants in the current invention.

Accordingly, the Applicants believe that independent Claim 1 is allowable for the reason cited above. Since dependent Claims 11 and 12 depend directly from independent Claim 1, it is submitted that these claims are allowable for at least the same reason as Claim 1. Favorable reconsideration of independent Claim 1, as well as its dependent Claims 11 and 12 is respectfully requested.

### *Conclusion*

Since the amendments made to the claims are well supported by the original claims and specification, the amendments do not represent the addition of any new matter.

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and this application is now in condition for allowance. Such action is requested.

Respectfully submitted,

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| June 12, 2008 | /Keith D. Weiss/ |
| Date | Keith D. Weiss (Reg. No. 55,720) |